

The spider genus *Tetragnatha* Latreille, 1804,
from the southern Far East of Russia (Aranei Tetragnathidae).

Пауки рода *Tetragnatha* Latreille,
1804 юга Дальнего Востока России (Aranei Tetragnathidae).

D. K. Kurenshchikov
Д. К. Куренщиков

Institute of Aquatic and Ecological Problems, Far Eastern Branch, Russian Academy of Sciences, Kim-Yu-Chen Street 65, Khabarovsk 680063 Russia.

Институт водных и экологических проблем ДВО РАН, ул. Ким-Ю-Чена, 65, Хабаровск 680063 Россия.

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КЛЮЧЕВЫЕ СЛОВА: *Tetragnatha*, фаунистика, Дальний Восток России.

ABSTRACT: Eleven *Tetragnatha* species are recorded in the southern Far East of Russia, of which *T.makiharai* Okuma, *T.recurva* Schenkel and *T.vermiformis* Emerton are new to the Russian fauna.

РЕЗЮМЕ: На юге Дальнего Востока России отмечены 11 видов рода *Tetragnatha*, среди которых *T.makiharai* Okuma, *T.recurva* Schenkel и *T.vermiformis* Emerton - новые для фауны России.

Introduction.

The Far Eastern fauna of the spider genus *Tetragnatha* Latreille, 1804, has been yet quite poorly known. As regards the Far East of Russia, first Azheganova & Stenchenko [1977] referred to four species, and later Marusik [1985, 1989] recorded already nine *Tetragnatha* spp. More recently, Logunov [1992] has reported as many as eight *Tetragnatha* species from the Bolshoi Khekhtsyur Reserve alone, environs of Khabarovsk.

In Korea, 11 species of *Tetragnatha* have been known [Kim, 1991]. Okuma [1988a, b] referred to 31 species populating Asia, ignoring the Russian Far East as a terra incognita.

The present paper puts on record the results of my studies of *Tetragnatha* inhabiting the southern parts of the Russian Far East as based on the collectings of a few people including myself (DK), as well as the collection of the Zoological Museum of the Biological Institute of the Siberian Branch of the Russian Academy of Sciences, Novosibirsk. Of the 11 species discovered, no fewer than three appear to be new to the Russian list. Below, the faunistic records are given followed by brief remarks on the morphology, ecology and distribution of

each species revealed. The map (Fig. 1) considers most of localities which are referred to as the respective number put in square brackets ([]) in the material put in square brackets ([]) in the material section for each species. The nomenclature of the cheliceral armature is given after Okuma [1987].

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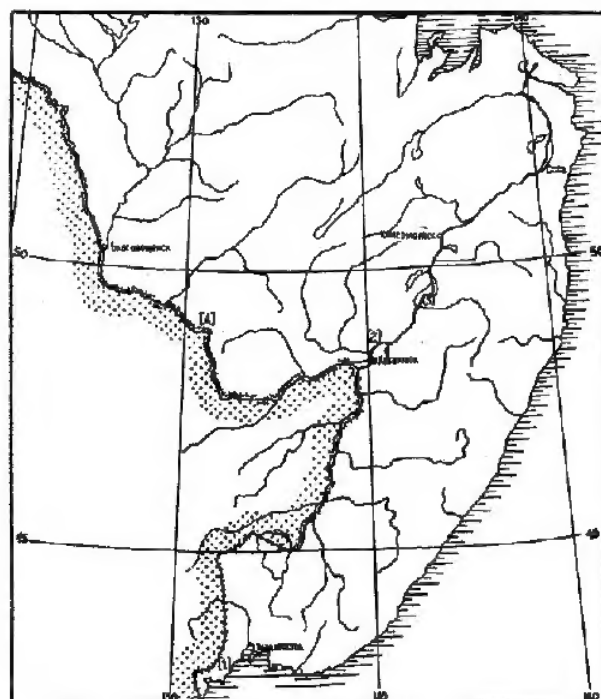


Fig 1. Map showing most of the localities referred to herein.

Рис. 1. Карта, показывающая большинство приведенных в статье мест находок.

collections were used here, as well as again to Dr. D.V. Logunov, Dr. N.A. Ryabinin (Khabarovsk), Dr. Y.M. Marusik (Magadan) for the help and encouragement in the course of my studies, and to Dr. S.I. Golovatch (Moscow), who checked the English of the final draft.

Systematic part.

Faunistic records.

1. *Tetragnatha caudicula* (Karsch, 1879).

Figs 2-11.

MATERIAL: 1 ♀, Maritime Prov., Khasan Distr., Golubinyi Utios nr. Village Khasan (43°N, 131°E) [1], 27.VII.1976. - 2 ♂, 2 ♀, same locality [1], Talmi Lake, 27.VII.1976. - 2 ♀, same locality [1], Kedrovaya Pad Reserve, 14.VII.1976; all leg. BZ. - 3 ♂, 1 ♀, Khabarovsk Prov., Oktiabrskii Distr., Amur River, 253 km upstream from Khabarovsk, Vinogradnyi Island (48°N, 133°E), meadow with *Potentilla erecta*, 19.VI.1988. - 1 ♂, same locality, Srednii Island, mixtoherbaceous meadow with *Artemisia*, 20.VI.1988. - 3 ♂, 2 ♀, Amur River, 380 km upstream of Khabarovsk, 21.VI.1988. - 1 ♂, Amur River, Novopokrovskoye, mixtoherbaceous meadow with *Artemisia*, 25.VI.1988. - 1 ♂, 3 ♀, Amur River, 700 km upstream from Khabarovsk, Sennoi Island, mixtoherbaceous meadow with *Artemisia*, 26.VI.1981; all leg. DK. - 3 ♀, Amur River, Nanaiskii Distr., Slavyanka (48°N, 137°E) [3], Slavyanskii Island, 24.VI.1989; leg. E.Tugi. - 6 ♂, same locality [3], grass in *Quercus mongolica* stand, 25.VIII.1991. - 5 ♂, 1 ♀, Amurskiy Distr., bank of Lake Bolon, 5 km SW of Achan (50°N, 137°E), *Calamagrostis* meadow, 23.VI.1990. - 1 ♂, 1 ♀, environs of Khabarovsk (48°N, 135°E) [2], Voronezhskiy Sopki, broadleaved forest, tree crowns, 22.VI.1991. - 2 ♂, same locality [2], 5 km SW of Priamurskii, small-leaved forest, tree crowns, VII.1991. - Amurskaya Area, Arkhara Distr., Khingan Reserve [4], Lake Lebedinoye, mixtoherbaceous meadow, 2.VIII.1991; all leg. DK.

Brief redescription of cheliceral armature: apophysal tooth *a* of ♂ chelicerae bifid, both teeth *T* and *t* present, tooth *sl* small, both upper and lower rows (*rsu* & *rsi*) with 5-6 denticles, main accessory tooth *AXI* poorly-developed and rounded, outgrowth *EX* absent; ♀ chelicerae with *rsu* and *rsi* each with 5-6 denticles, *AXu* poorly developed, *EX* present; in both sexes, apical part surpassing spinnerets.

Distribution: Southern Far East of Russia, Japan, Korea.

2. *Tetragnatha dearmata* Thorell, 1873.

Figs 59-61

MATERIAL: 1 ♂, Khabarovsk Prov., environs of Khabarovsk [2], Bolshoi Khokhtsy Reserve, broadleaved forest, in tree crowns, 19.VI.1992; leg. DK.

Brief redescription of cheliceral armature [after Wiehle, 1963]: ♂ chelicerae bifid, *Gu* curved, *AXI* present, *rsu* with 5, *rsi* with 6 denticles; ♀ chelicerae with *EX* present, rounded, *Gu* big, pointed, row *rsu* with 5, *rsi* with 4 denticles.

Distribution: Palearctic.

3. *Tetragnatha extensa* (Linnaeus, 1758).

Figs 25-31

MATERIAL: 4 ♀, Maritime Prov., Khasan Distr. [1], Kedrovaya Pad State Reserve, 14.VII.1976. - 1 ♂, same locality [1], Bolshaya Barabashevka River, 10 km upstream from Barabashevo, 5.VIII.1977; all leg. BZ. - 1 ♂, 1 ♀, Khabarovsk Prov., Lazo Distr., floodplain of Kiya River (48°N, 135°E), VI.1989; leg. YD. - 2 ♂, 3 ♀, Ulchskii Distr., Amur River, 445 km downstream from Khabarovsk, Zherebtsovo (51°N, 148°E), *Betula*, *Corylus*, *Rosa*, *Salix* crowns, *Calamagrostis* herb, 26.VI.1990. - 1 ♀, Ulchskii Distr., 20 km upstream from Martinskoye (52°N, 140°E), bush-herbaceous stratum in *Betula*, *Juglans*, *Quercus* forest, 27.VI.1990; all leg. DK.

Brief redescription of cheliceral armature: apophysal tooth *a* of ♂ chelicerae bifid, teeth *AXu* & *AXI* absent, tooth *T* well-developed, tooth *sl* present, *rsu* with 4, *rsi* with 6 denticles, main tooth *GI* well-developed, *Gu* absent, outgrowth *EX* poorly-expressed; ♀ chelicerae with *Gu* present, *AXu* & *AXI* absent, *rsu* and *rsi* each with 6 denticles, *GI* big, *EX* well-developed.

Distribution: Holarctic.

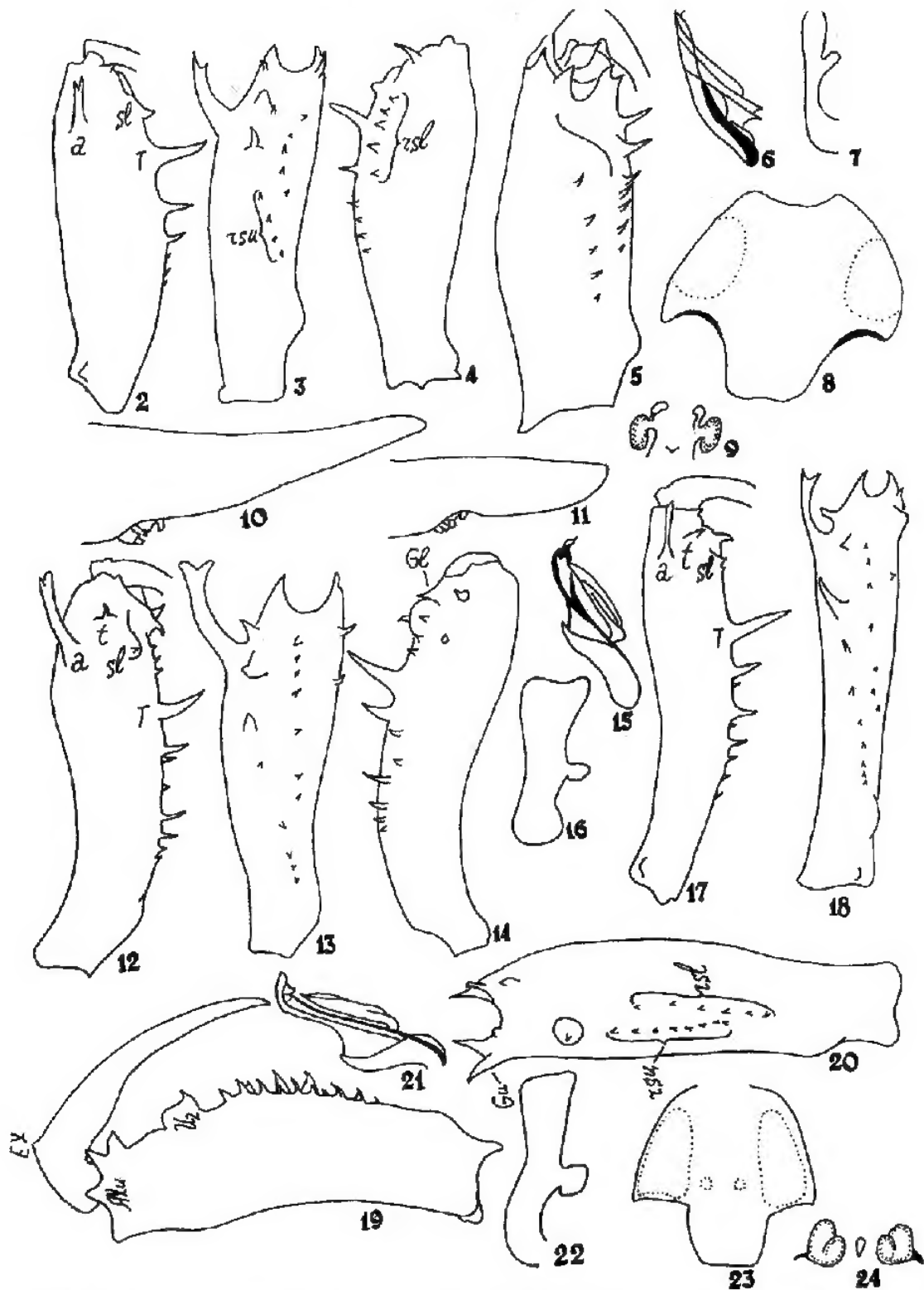
4. *Tetragnatha (Eucta) isidis* (Simon, 1880).

Fig.62

MATERIAL: 2 ♂, Khabarovsk Prov., Ulchskii Distr., Amur River, 445 km downstream from Khabarovsk, Zherebtsovo (51°N, 148°E), *Calamagrostis* meadow, 26.VI.1990. - 3 ♂, environs of Khabarovsk [2], Voronezhskiy Sopki, broadleaved forest, tree crowns, 5.VII.1990. - 1 ♂, 2 ♀, same locality [2], Bolshoi Khokhtsy Reserve, broadleaved forest, tree crowns, 7.VII.1992. - 1 ♂, same locality [2], Belaya River, small-leaved forest, tree crowns, 19.VII.1992; all leg. DK. - 1 ♂, Komsomolskii State Reserve, delta of Goryun River, *Larix* forest, litter, VII.1990; leg. GG.

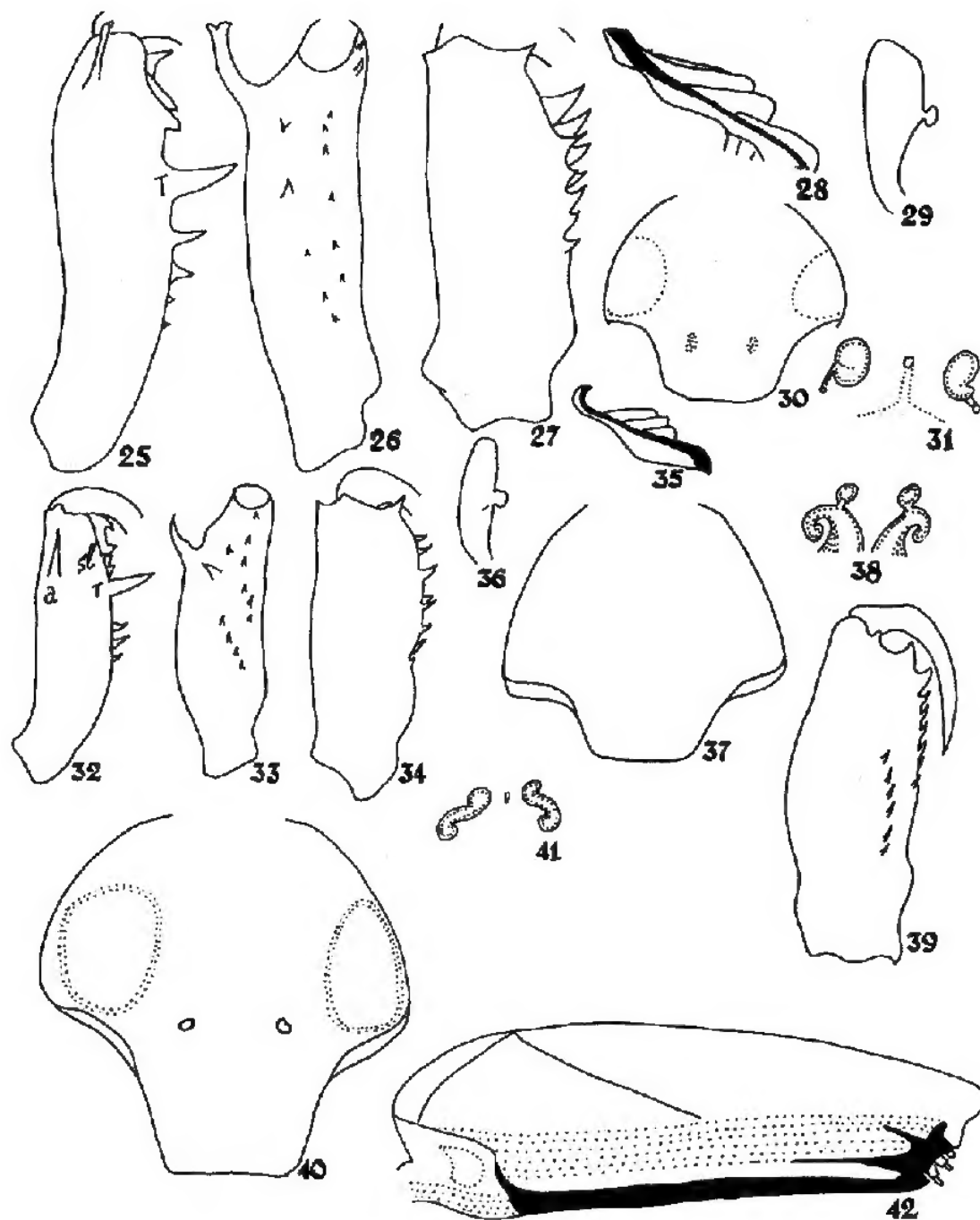
Brief redescription of cheliceral armature: ♂ chelicerae with *AXu* & *AXI* rounded, present in addition to only *rsi* with 3 denticles, *L3* strongly developed, curved.

Distribution: Palearctic.



Figs 2-24. 2-11: *Tetragnatha caudicula* (Karsch), ♂ (2-3, 6, 7, 11) & ♀ (5, 8-10), 12-16: *Tetragnatha makibarae* Okuma, ♂, 17-24: *Tetragnatha praedonia* L.Koch, ♂ (17, 18, 21, 22) & ♀ (19, 20, 23, 24): 2, 12, 17, 19 - left chelicera, dorsal; 3, 13, 18, 20 - left chelicera, ventral; 4, 14 - left chelicera, mesal; 5 - left chelicera, ventrolateral; 6, 15, 21 - conductor & embolus; 7, 16, 22 - paracymbium; 8, 23 - genital fold, 9, 24 - vulva; 10-11 - distal part of abdomen.

Рис. 2-24. 2-11: *Tetragnatha caudicula* (Karsch), ♂ (2-3, 6, 7, 11) и ♀ (5, 8-10), 12-16: *Tetragnatha makibarae* Okuma, ♂, 17-24: *Tetragnatha praedonia* L.Koch, ♂ (17, 18, 21, 22) и ♀ (19, 20, 23, 24): 2, 12, 17, 19 - левая хелицера, дорсально; 3, 13, 18, 20 - левая хелицера, вентрально; 4, 14 - левая хелицера, медиально; 5 - левая хелицера, вентролатерально; 6, 15, 21 - кондуктор и эмболюс; 7, 16, 22 - парацимбиум; 8, 23 - гентальная складка, 9, 24 - вульва; 10-11 - дистальная часть брюшка.



Figs 25-42. 25-31. *Tetragnatha extensa* (Linnaeus), ♂ (25, 26, 28, 29) & ♀ (27, 30, 31), 32-38: *Tetragnatha pinicola* L.Koch, ♂ (32, 33, 35, 36) & ♀ (34, 37, 38), 39-42: *Tetragnatha vermiciformis* Emerton, ♀: 25, 27, 32, 34, 39 — left chelicera, dorsal; 26, 33 — left chelicera, ventral; 28, 35 — conductor & embolus; 29, 36 — paracymbium; 30, 37, 40 — genital fold; 31, 38, 41 — vulva; 42 — abdomen.

Figs 25-42. 25-31. *Tetragnatha extensa* (Linnaeus), ♂ (25, 26, 28, 29) и ♀ (27, 30, 31), 32-38: *Tetragnatha pinicola* L.Koch, ♂ (32, 33, 35, 36) и ♀ (34, 37, 38), 39-42: *Tetragnatha vermiciformis* Emerton, ♀: 25, 27, 32, 34, 39 — левая хелицера, дорсально; 26, 33 — левая хелицера, вентрально; 28, 35 — кондуктор и эмболюс; 29, 36 — парацимбиум; 30, 37, 40 — генитальная складка; 31, 38, 41 — вульва; 42 — брюшко.

5. *Tetragnatha makiharai* Okuma, 1977.

Figs 12-16.

MATERIAL: 1 ♂, Maritime Prov., Khasan Distr. [1], Kedrovaya Pad Reserve, 26.VI.1976. - 1 ♂, same locality [1], 14.VII.1976; all leg. BZ.

Brief redescription of cheliceral armature: apophysal tooth of ♂ chelicerae bifid, tooth T well-developed, both teeth sl and t present, rsu with 5, rsl with 6 denticles, Gl directed toward base of segment, main accessory tooth AXI as well as AXu present.

Distribution: Maritime Prov., Japan. This is a species new to the Russian list!

6. *Tetragnatha montana* Simon, 1874.

Figs 63-65.

MATERIAL: 1 ♂, Khabarovsk Prov., environs of Khabarovsk [2], Bolshoi Khekhtsyrs Reserve, Belaya River, small-leaved forest, tree crowns, 19.VII.1992; leg. DK.

Brief redescription of cheliceral armature [after Wiehle, 1963]: apophysal tooth a of ♂ chelicerae bifid, tooth t rounded in shape, U2 big, row rsu with 5, rsl with 7 denticles, EX absent; ♀ chelicerae with EX present, row rsu with 5, rsl with 7 denticles.

Distribution: Palearctic.

7. *Tetragnatha pinicola* L.Koch, 1870.

Figs 32-38.

MATERIAL: 1 ♂, 1 ♀, Maritime Prov., Khasan Distr. [1], Kedrovaya Pad State Reserve, dry meadow, 26.VI.1976. - 1 ♂, 1 ♀, same locality [1], crossroads nr. Primorskaya, 1.VII.1976. - 1 ♂, 1 ♀, same locality [1], Gakkelevskii Spring, 2.VII.1976. - 1 ♂, 2 ♀, same locality [1], nr. Gorayskii Spring, 5.VII.1976. - 1 ♂, same locality [1], plain btw. Kedrovaya Pad Reserve & Amurskii Bay, 7.VII.1976. - 1 ♂, 3 ♀, same locality [1], Gorayskii Spring, valley forest, 21.VIII.1978. - 1 ♀, same locality [1], 16.VI.1976; all leg. BZ. - 4 ♂, 3 ♀, Khabarovsk Prov., environs of Khabarovsk [2], Bolshoi Khekhtsyrs Reserve, 150 m a.s.l., sparse forest, 22.VI.1987; leg. DL. - 1 ♀, same locality [2], Belaya River, *Calamagrostis*-mixtoherbaceous meadow, 18.VIII.1992. - 1 ♀, Nanaiskii Distr., Slavyanka (48°N, 137°E) [3], broadleaved forest, tree crowns, 30.VII.1990. - 2 ♀, Ulchskii Distr., Amur River flow, Tsimmermanovskii Island (51°N, 139°E), *Calamagrostis* meadow, 26.VI.1990; all leg. DK. - 1 ♂, Amurskaya Area, Tambovskii Distr., Kozmodemianovka (50°N, 128°E), dry valley meadow, VII.1990; leg. GG.

Brief redescription of cheliceral armature: apophysal tooth a of ♂ chelicerae not bifid, both

teeth AXu and Gu absent, teeth T, sl, AXI & Gl present, rsu with 4, rsl with 5 denticles, outgrowth EX absent; ♀ chelicerae with Gu & Gl present, rsu and rsl each with 5 denticles, EX absent.

Distribution: Palearctic.

8. *Tetragnatha praedonia* L.Koch, 1878.

Figs 17-24.

MATERIAL: 1 ♀, Maritime Prov., Khasan Distr. [1], Kedrovaya Pad Reserve, upper reaches of Pokidovskogo Spring, 20.VII.1978. - 1 ♂, same locality [1], 17.VI.1976; all leg. BZ. - 2 ♂, Khabarovsk Prov., Amurskii Distr., bank of Lake Bolon (50°N, 136°E), *Spiraea* & *Rosa* bush crowns, 23.VI.1976. - 2 ♂, Beshenaya Backwater opposite Khabarovsk [2], *Calamagrostis* meadow, 23.VI.1976. - 1 ♂, environs of Khabarovsk [2], Bolshoi Khekhtsyrs Reserve, Odyr River, mixtoherbaceous clearing, 19.VIII.1992. - 2 ♂, same locality [2], Belaya River, *Calamagrostis*-mixtoherbaceous meadow, 27.VIII.1992. - 1 ♀, Amurskaya Area, Arkhara Distr., Khingan Reserve [4], Lake Lebedinoe, *Betula*, *Corylus*, *Lespedeza* stand, 3.VIII.1991; all leg. DK.

Brief redescription of cheliceral armature: apophysal tooth a of ♂ chelicerae bifid, teeth T, t, AXu, AXI present, tooth sl on a tubercle, both upper and lower rows (rsu & rsl) with 6 denticles, outgrowth EX well-developed; ♀ chelicerae with AXu & AXI present, large, U2 on a tubercle, rsu with 6, rsl each with 8 denticles, main teeth Gu & Gl present, EX well-developed; in both sexes, apical part surpassing spinnerets, distal third of movable tooth with a row of denticles.

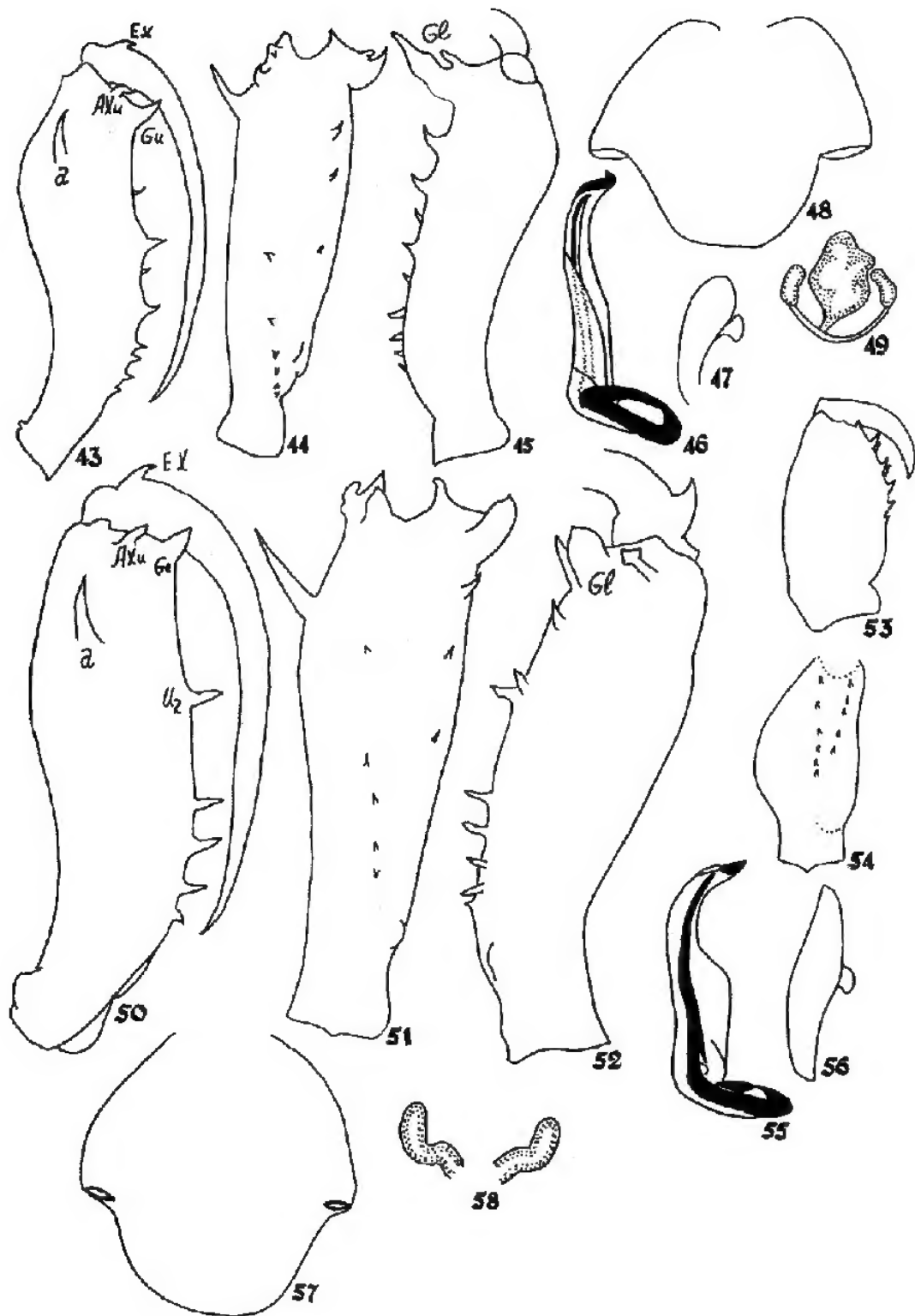
Distribution: Southern Far East of Russia, Japan, Korea, China, Taiwan.

9. *Tetragnatha recurva* Schenkel, 1936.

Figs 50-57.

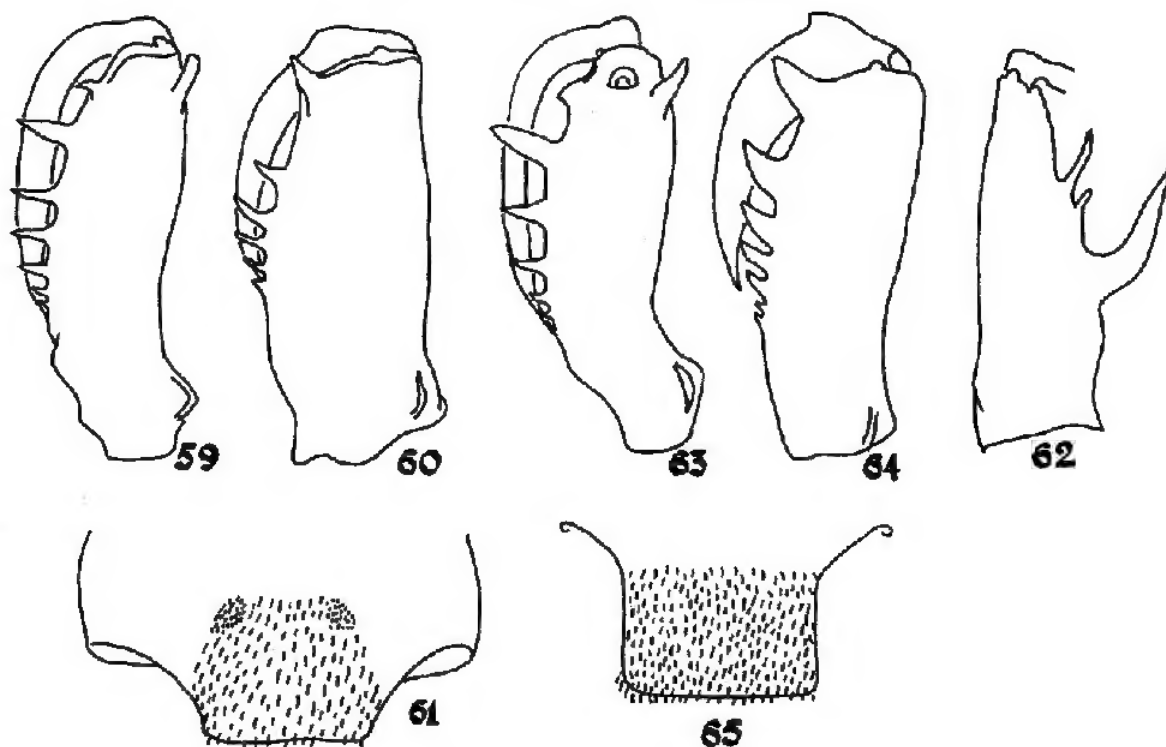
MATERIAL: 2 ♂, 2 ♀, Khabarovsk Prov., environs of Khabarovsk [2], 5 km W of Priamurskii, small-leaved forest, tree crowns, 2.VIII.1991; leg. DK.

Brief redescription. Male: frontal row of eyes somewhat broader than caudal, both rows equally arcuate. PME-PME isthmus somewhat broader than AME-AME one. Clypeus equal to PME-AME interdistance. Chelicerae well-developed, a not bifid apically, AXu present, directed parallel to Gu, tooth U2 placed halfway between Gu and U3, row rsu with 5, rsl with 3 denticles, AXI present, placed near Gl, latter big, with a knob, outgrowth EX present, claw-shaped. Abdomen clothed with silvery scales, ventromedially sparse, dorsomedially with two reddish spots, of which fore one extending to about abdominal middle and caudal one from



Figs 43-58. 43-49: *Tetragnatha yessoensis* Saito, ♂ (43-47) & ♀ (48, 49), *Tetragnatha recurva* Schenkel, ♂ (50-52, 55, 56) & ♀ (53, 54, 57, 58): 43, 50, 53 — left chelicera, dorsal; 44, 51, 54 — left chelicera, ventral; 45, 52 — left chelicera, mesal; 46, 55 — conductor & embolus; 47, 56 — paracymbium; 48, 57 — genital fold; 49, 58 — vulva.

Рис. 43-58. 43-49: *Tetragnatha yessoensis* Saito, ♂ (43-47) и ♀ (48, 49), *Tetragnatha recurva* Schenkel, ♂ (50-52, 55, 56) и ♀ (53, 54, 57, 58): 43, 50, 53 — левая хелицера, дорсально; 44, 51, 54 — левая хелицера, вентрально; 45, 52 — левая хелицера, медиально; 46, 55 — кондуктор и эмболюс; 47, 56 — парацимбиум; 48, 57 — генитальная складка; 49, 58 — вульва.



Figs 59-65. 59-61: *Tetragnatha dearmata* Thorell, ♂ (59) & ♀ (60-61), *Tetragnatha isidis* (Simon), ♂, *Tetragnatha montana* Simon, ♂ (63) & ♀ (64, 65): 59-60, 62-64 — left chelicera, dorsal; 61, 65 — genital fold.

Рис. 59-65. 59-61: *Tetragnatha dearmata* Thorell, ♂ (59) и ♀ (60-61), *Tetragnatha isidis* (Simon), ♂, *Tetragnatha montana* Simon, ♂ (63) и ♀ (64, 65): 59-60, 62-64 — левая челюсть, дорсально; 61, 65 — генитальная складка.

spinnerets to anterior 1/3 abdomen. Vital colour green, in ethanol pale yellow.

Female: eyes arranged as in ♂, cheliceral Gu small, rsu with 6, rsl with 3 denticles, Gl little; abdomen clothed with silvery scales, a bit more sparsely ventromedially.

Distribution: Hitherto known but from the original description from central China [Schenkel, 1936]. This is the first record of this species in Russia!

10. *Tetragnatha vermiformis* Emerton, 1884.

Figs 39-42.

MATERIAL: 2 ♀, Khabarovsk Prov., Ulchskii Distr., Amur River, 445 km downstream from Khabarovsk, *Calamagrostis* meadow, 25.VI.1990. - 1 ♀, Ulchskii Distr., 20 km upstream from Bogorodskoye, Suchu Island (52°N, 140°E), *Quercus* forest with herbaceous undergrowth, 25.VIII.1991; all leg. DK.

Brief redescription: A characteristic, dark, ventral line without silver sparkles in the middle of abdomen; Gu, Gl & EX not large, rsu & rsl each with 4 denticles.

Distribution: Bangladesh, India, Sri Lanka, Burma, Thailand, Malaysia, China, Korea, Japan, USA, Russian Far East. This is a species new to the Russian list!

11. *Tetragnatha yesoensis* Saito, 1934.

Figs 43-49.

MATERIAL: 1 ♂, Maritime Prov., Khasan Distr. [1], Kedrovaya Pad State Reserve, valley broadleaved forest, 25.VI.1976; leg. EI. - 2 ♂, 2 ♀, Khabarovsk Prov., environs of Khabarovsk [2], Bolshoi Khekhtsyur Reserve, 200 m a.s.l., broadleaved forest, herb undergrowth, 22.VI.1987; leg. DL. - 1 ♂, same locality [2], broadleaved forest, tree crowns, 7.VII.1992; leg. DK.

Brief redescription of cheliceral armature: ♂ AXU with small exterior knob, Gu well-developed, pointedly triangular, both rsu & rsl with 5 denticles, AXI absent, Gl very big, as a tin-opener, outgrowth EX present; ♀ chelicerae with main tooth Gu present, rsu & rsl each with 5 denticles.

Distribution: Southern Far East of Russia, Japan, Korea.

Discussion.

In the southern part of the Far East of Russia, 11 *Tetragnatha* species are currently known. The fauna includes the widespread Holarctic *T. textensa* and *T. vermiformis* as well as Palearctic *T. dearmata*, *T. isidis*, *T. montana*, and *T. pinicola*. More local forms, such as *T. makiharai*, *T. praedonia*, *T. yesoensis* and *T. recurva*, seem to be of a Manchurio-Japanese distribution pattern. Like the above Holarctic congeners, *T. pinicola* appears to occur both in the arboreal and herbaceous strata of valley, mainly small-leaved, forests and meadows but, contrary to them, it also populates dry valley meadows, broadleaved and *Pinus sibirica*-broadleaved forests. The Manchurio-Japanese elements are euryoecic, ranging from insular and floodplain habitats to indigenous taiga (coniferous thicket) biotopes.

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